Specialist High Skills Major

Sector-Specific Guide

Horticulture and Landscaping

DRAFT 2007–2008

reach every student

Ontario

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A. Overview

The Specialist High Skills Majors (SHSM), launched in September 2006, are part of the Student Success Strategy initiative, which focuses on expanding quality learning opportunities and supporting success for all students. The SHSM is a ministry-approved specialized program that allows students to focus their learning on a specific economic sector while meeting the requirements for their Ontario Secondary School Diploma (OSSD). This career-focused program is also designed to help prepare students to make the transition from secondary school to apprenticeship training, college, university, or the workplace. An SHSM enables students to gain sector-specific skills and knowledge in the context of engaging, career-related learning environments and helps them focus on graduation and on pursuing their postsecondary goals.

The ministry has published the *Specialist High Skills Major Implementation Guide*, as well as sector-specific guides, like this one, for each of the SHSM economic sectors. Boards and schools are strongly encouraged to refer to the *SHSM Implementation Guide* along with the SHSM sector-specific guides when planning and implementing an SHSM.

This guide provides information about the five required components of the SHSM–Horticulture and Landscaping, sample pathways for the SHSM, examples of postsecondary programs in the sector, a list of resources, and profiles of the programs that were being offered in Ontario schools in 2007–08.

B. Advantages of Earning a Specialist High Skills Major (SHSM) in Horticulture and Landscaping

Ornamental horticulture and landscaping is a multibillion-dollar industry offering thousands of full- and part-time employment opportunities in Ontario. The sector is growing rapidly, due to unprecedented residential and commercial construction activity. There will be a great demand for skilled employees over the coming years, as well as expanded entrepreneurial opportunities. In addition, there is a growing need for the management of local parks and botanical or heritage gardens, the maintenance of sports grounds, and the construction of domestic gardens, as well as increased consumer demand for outdoor recreation, environmental sustainability, and eco-tourism. (Source: Landscape Ontario 2006, www.horttrades.com)

Pursuing the Specialist High Skills Major–Horticulture and Landscaping enables students to:

- customize their secondary school education to suit their interests and talents while meeting the requirements for the OSSD;
- select a bundle of 9 required credits focused on sector-specific knowledge and skills that are:
  - valued by the horticulture and landscaping sector and postsecondary educational institutions;
  - designed to help prepare students for a postsecondary destination of their choice in this economic sector;
  - designed with the flexibility to allow students to shift between pathways (e.g., switch from a pathway leading to college to an apprenticeship pathway) or to discontinue the SHSM program should their career plans change in Grade 11 or 12;
- provide evidence of achievement of the required components of the SHSM (e.g., sector-recognized certifications) for prospective employers and postsecondary educational institutions;
- explore, identify, and refine career goals and make informed decisions about their postsecondary options;
- take part in "reach ahead" experiences that will help them gain confidence in their ability to be successful, refine skills and work habits, and make an informed choice about future careers and next steps;
- develop Essential Skills and work habits that are required in the sector, and have their performance of those skills and work habits assessed and documented, using tools connected with the Ontario Skills Passport;
- access resources, equipment, and expertise that may not be available in their secondary school.

C. Required Components for the SHSM–Horticulture and Landscaping

Required Components for the SHSM–Horticulture and Landscaping

1. a bundle of 9 Grade 11 and Grade 12 credits that includes:
   - i) 4 horticulture and landscaping major credits that provide sector-specific knowledge and skills;
   - ii) 3 other required credits from the Ontario curriculum, in English, mathematics, and science, in which some expectations are met through learning activities contextualized to the horticulture and landscaping sector;
   - iii) 2 cooperative education credits that provide authentic learning experiences in a workplace setting, enabling students to refine, extend, apply, and practise sector-specific knowledge and skills
2. 5 sector-recognized certifications and/or training courses/programs (4 compulsory and 1 Certified Horticultural Technician (CHT) package from a list of 4 CHT packages)
3. experiential learning activities within the sector
4. "reach ahead" experiences connected with the student's postsecondary pathway
5. development of Essential Skills and work habits required in the sector, and use of the Ontario Skills Passport (OSP) for purposes of documentation

Students earning an SHSM receive an OSSD with the red SHSM seal, as well as an SHSM Record that documents the student's achievement of each of the required components.

The five required components for an SHSM diploma designation are designed to give students a rich and varied range of curriculum-based and experiential learning experiences, as a foundation for making a successful transition to their chosen postsecondary education or training program or occupation.

Local circumstances, such as facilities and equipment, staff qualifications, partnerships, and agreements, determine how the SHSM's required components can be offered to students. Depending on these circumstances, the components may be delivered in a secondary school, college, training centre, other approved site, or a combination of these delivery settings. See the *SHSM Implementation Guide* for more information on delivery models.

No substitutions for any of the five required components of an SHSM are permitted.

1. Bundled Credits

Each SHSM has a bundle of credits that consists of major credits, other required credits, and cooperative education credits. The bundle for the SHSM–Horticulture and Landscaping consists of:

i) 4 major credits;

ii) 3 other required credits;*

iii) 2 cooperative education credits.

The credits in the bundle prepare students for one of four postsecondary options – apprenticeship training, college, university, or the workplace.

i) Major credits

Each SHSM has four major credits that enable students to build a foundation of sector-focused knowledge and skills. The major credits may be:

- credits for Ontario curriculum courses;
- credits for ministry-approved locally developed credits (LDCs); or
- dual credits, which are subject to their own approval policies and procedures.

ii) Other required credits

In addition to the major credits, each SHSM includes *other required credits* from the Ontario curriculum. (In the SHSM–Horticulture and Landscaping, the other required credits are in English, mathematics, and science.) These courses are delivered by the teachers of the required subjects, and involve the use of contextualized learning activities (CLAs), which enable students to connect their learning in these courses to their SHSM sector. CLAs are based on curriculum expectations from the required course. One or more CLAs, totalling a minimum of six hours in length, must be incorporated into each required course. (A CLA template is provided in Appendix A.)

iii) Cooperative education credits

Cooperative education provides authentic learning experiences in a workplace setting that enable students to refine, extend, apply, and practise the sector-specific knowledge and skills acquired in the bundle of credits. Each SHSM requires that students complete a minimum of two credits in cooperative education linked to the major credits. (More than two credits are recommended, if the student's timetable permits.)

Students may earn their minimum of two cooperative education credits in Grade 11 and/or Grade 12, as a single credit in each grade or a double credit in one grade. (Students in the university pathway, however, are advised to complete their cooperative education credits in Grade 11, in order to allow room in their timetables in Grade 12 for credits needed to meet university entrance requirements.) Depending on local circumstances, students may have to complete their cooperative education credits through continuing education, in the summer, or through virtual cooperative education. See *Cooperative Education and Other Forms of Experiential Learning: Policies and Procedures for Ontario Secondary Schools, 2000*.

* SHSMs in other sectors may require 2 or 4 other credits. For details, see the other sector-specific guides.

Summary of the Required Credits in the Bundle for the SHSM–Horticulture and Landscaping

The 9 required credits in the bundle for the SHSM–Horticulture and Landscaping are identified in the table below. No substitutions for the credits in the bundle are allowed, and the credits must be at the specified grade level. School boards are required to submit for ministry approval their proposed pathway chart for each bundle, by pathway. Once a credit bundle is approved, the board may not change any of the credits in the bundle for that school year.

Required Credits in the Bundle for the SHSM–Horticulture and Landscaping

Credits	Apprenticeship Training		College		University		Workplace	
	Gr. 11	Gr. 12	Gr. 11	Gr. 12	Gr. 11	Gr. 12	Gr. 11	Gr. 12
Horticulture and Landscaping Major*	2	2	2	2	2	2	2	2
English	1		1		1			1
Mathematics		1		1		1	1	
Science	1		1		1		1	
Cooperative Education	2		2		2		2	
Total number of credits	9		9		9		9	

* Multiple credits in the Ontario technological education curriculum allow additional instructional time for the practice and refinement of skills needed to develop student performance to the levels required for certification, entry into apprenticeship programs, or participation in school–work transition programs (see *The Ontario Curriculum, Grades 11 and 12: Technological Education, 2000*, page 6).

A pathways chart is given on page 13, showing subjects and courses that students could take to explore the SHSM–Horticulture and Landscaping in Grades 9 and 10, and courses they would have to take in Grades 11 and 12 to complete this specialized program. Sample bundles of credits that would meet the requirements for the SHSM–Horticulture and Landscaping are provided on page 14.

2. Sector-Recognized Certification and Training

Sector-recognized certifications and training courses/programs, including those addressing safety, are important for students who are working towards the SHSM and provide them with an advantage when they are entering the workforce, whatever their chosen career goal may be.

Certifications and training courses/programs must:

- be delivered by a certified trainer – a person recognized by the certification provider or by the sector as an authority. (This requirement does not apply to WHMIS.);
- include an assessment and evaluation component;

- include, wherever possible, documentation such as a certificate or other proof of completion for the student's portfolio and the student's SHSM Record. The SHSM Record will indicate the title of each certification earned or training course/program completed, the number of hours involved, and the date the certification/training was completed.

The SHSM in horticulture and landscaping requires students to complete five (5) sector-recognized certifications and/or training courses/programs or packages of courses. Of these, four (4) are compulsory and the remaining one (1) is a package of training courses to be chosen from the list of Certified Horticultural Technician (CHT) packages identified in the following chart. These requirements are summarized below:

SHSM–Horticulture and Landscaping: Sector-Recognized Certification and Training

Four (4) compulsory			
Standard First Aid	Cardio-Pulmonary Resuscitation (CPR)	plant identification	generic (i.e., not site-specific) Workplace Hazardous Materials Information System (WHMIS)
One (1) Certified Horticultural Technician (CHT) package of training courses from the list below:			
CHT Maintenance • 21" Mower • 36" Mower • Edging and Trimming • Pruning	**CHT Construction/ Installation** • Plant Layout • Grading and Drainage • Paver Installation	**CHT Garden Centre** • Cash Handling • Phone Etiquette • Customer Etiquette	**CHT Maintenance Installation** • Tree Planting • Grading and Sodding • Work Orders

Note: Items that are capitalized are the *proper names* of specific certifications or training courses/programs that are appropriate for the SHSM. Items that are lowercased are names of the areas or categories within which specific certification or training courses/programs should be selected by the school or board.

Boards and schools may provide opportunities for students to complete additional training.

No substitutions for items in the above lists or changes in the *number* of required certifications and training courses/programs are permitted.

3. Experiential Learning

The SHSM experiential learning requirement consists of planned learning activities that take place outside the traditional classroom setting. Experiential learning, which can include job shadowing, job twinning, work experience, virtual work experience, and cooperative education (see Appendix B), enables students enrolled in the SHSM to find out about opportunities available to them in connection with the careers that interest them.

Experiential learning activities give students opportunities to explore, observe, participate in, and reflect on a variety of sector-specific experiences and careers. They also enable students to increase their awareness of, and develop, the Essential Skills and work habits required in the sector, and have their performance of those skills and habits assessed and documented, using tools connected with the Ontario Skills Passport. An experiential assignment or task could require students to identify examples of how the Essential Skills are applied in specific trades or specializations (e.g., landscape designer, horticultural technician, greenskeeper) and/or administrative and management occupations in a horticulture and landscaping business.

Experiential learning opportunities could include:

- one-on-one observation of a cooperative education student in a placement in the horticulture and landscaping sector (example of job twinning);
- a day-long observation of a skilled tradesperson in the horticulture and landscaping sector (example of job shadowing);
- a one- or two-week work experience with a member of an industry association or a professional in the sector (example of work experience);
- attendance at college or university classes in a horticulture and/or landscaping program;
- the design and installation of a landscaping project on the grounds of the school or school board;
- attendance at a workshop put on by a garden centre or nursery;
- a tour of a a greenhouse in which research is conducted;
- a volunteer experience with a community landscaping initiative.

An experiential learning activity connected with the student's postseconday pathway can be considered a "reach ahead" experience (see section 4, below). For example, job shadowing an aborist in a local horticulture and landscaping business would be an experiential learning activity for all students in a Horticulture and Landscaping SHSM, but it could also be a "reach ahead" experience for a student considering a career as an arborist. Note, however, that the activity can be recorded *only once* on the student's SHSM Record – as either an experiential learning activity or a "reach ahead" experience. This restriction reflects the expectation, described earlier, that the student's SHSM program will offer a rich and varied range of experiential learning opportunities.

Cooperative education is also a form of experiential learning. However, for the purposes of the SHSM program requirements and the student's SHSM Record, the two cooperative education credits must be counted as part of the SHSM bundled credit requirement.

Experiential learning placements for students must be arranged by the school and must meet the following requirements:

- A placement must be assessed by a teacher before the student is assigned to it to ensure that the placement offers a positive learning environment and a safe workplace. (*See Cooperative Education and Other Forms of Experiential Learning: Policies and Procedures for Ontario Secondary Schools*, 2000. Available online at www.edu.gov.on.ca/eng/document/curricul/secondary/coop/cooped.pdf.)

- A placement must have Workplace Safety and Insurance Board coverage through the ministry or the workplace.(See Policy/Program Memorandum No. 76A, September 27, 2000; excerpted in Appendix B of the *SHSM Implementation Guide*.)

For more information consult *Live Safe! Work Smart! Appendix for Cooperative Education and Other Forms of Experiential Learning*, at www.livesafeworksmart.net/english/coop/coop_appdx.htm.

For a summary of the regulations governing age requirements for working in and/or visiting workplaces in Ontario, see Appendix C.

4. "Reach Ahead" Experiences

Students in the SHSM in Horticulture and Landscaping must have learning experiences connected with their postsecondary pathway. "Reach ahead" experiences can range from visiting a college to investigate the program a student is considering, to sitting in on university classes in a student's field of interest, to discussing the postsecondary education, training, and experiences of someone in the occupation a student is interested in. These experiences can vary in length – from a few hours to the time necessary for a full course. Examples include:

- *Workplace:* interviewing the owner of a lawn care company about the business
- *Apprenticeship:* job shadowing an arborist for a day
- *College:* attending classes in a college golf course technician program for a day
- *University:* job shadowing a landscape architect for a day
- *All pathways:* touring a garden centre or tree farm and talking to staff members about their education and training

Every "reach ahead" experience should have an assignment or task associated with it. For example, the assignment for a student considering an apprenticeship pathway could be to interview a tradesperson to discover details about his or her training, and to write a report summarizing the tradesperson's answers.

5. Development of Essential Skills and Work Habits, and Use of the Ontario Skills Passport (OSP) for Purposes of Documentation

Human Resources and Social Development Canada (HRSDC) has identified and validated the Essential Skills that people need for life, learning, and work. Essential Skills are foundational skills that make it possible to learn technical skills and other job- or workplace-specific skills. They are skills that enable people to perform tasks required in their jobs and to participate fully in the workplace and in the community. These Essential Skills are transferable from school to work, job to job, and sector to sector. The Ministry of Education and the Ministry of Training, Colleges and Universities have developed the Ontario Skills Passport (OSP) on

the basis of the HRSDC's Essential Skills. The OSP also incorporates work habits that are beneficial not only for work but also for life and learning. The skills and work habits included in the OSP are as follows:

Essential Skills	Work Habits
• Reading Text • Writing • Document Use • Computer Use • Oral Communication *Numeracy* • Money Math • Scheduling or Budgeting and Accounting • Measurement and Calculation • Data Analysis • Numerical Estimation *Thinking Skills* • Job Task Planning and Organizing • Decision Making • Problem Solving • Finding Information	• Working Safely • Teamwork • Reliability • Organization • Working Independently • Initiative • Self-Advocacy • Customer Service • Entrepreneurship

The Ontario Skills Passport provides clear descriptions of Essential Skills that are used in nearly all occupations and of work habits that are important for success in the workplace. The OSP provides a common language that helps students build competence and confidence and make connections between school and their prospective careers. The OSP also provides employers with a consistent method of assessing the student's demonstration of these skills and work habits in the workplace.

Sector representatives consulted on the development of the SHSMs emphasized the importance of the Essential Skills and work habits included in the OSP. Students pursuing an SHSM–Horticulture and Landscaping track their development of Essential Skills and work habits in their OSP Work Plan throughout their experiential learning activities (including cooperative education placements and "reach ahead" experiences). In consultation with the teacher, employers assess each student's demonstration of Essential Skills and work habits identified in the OSP and record their assessments in the student's OSP Work Plan.

See the *SHSM Implementation Guide* for more information about the OSP and how it can be used in connection with an SHSM program. The OSP website (http://skills.edu.gov.on.ca) also offers resources for the use of the OSP in SHSM programs.

D. Pathways for the SHSM–Horticulture and Landscaping

This section contains the following:

- ideas that schools and boards can use to promote awareness and exploration of the SHSM–Horticulture and Landscaping among students and to help students as they make the decision to specialize in this program
- a chart showing a pathways template for completing the SHSM–Horticulture and Landscaping
- a chart that contains sample bundles of credits for the SHSM–Horticulture and Landscaping

Strategies for Promoting and Suggestions for Planning the SHSM–Horticulture and Landscaping

Grades 7 and 8: Awareness

The following are examples of strategies that boards and schools can use to build Grade 7 and 8 students' awareness of the SHSM program:

- organize field trips, competitions, and activities in the community that are specific to the SHSM
- host presentations or talks on careers with guest speakers and mentors from the sector
- hold a summer program sponsored by the sector before students enter secondary school
- organize experiences at a secondary school in the program related to this sector
- invite current SHSM–Horticulture and Landscaping students to share their experiences

Grades 9 and 10: Exploration

Students who are considering pursuing the SHSM–Horticulture and Landscaping can be encouraged to enrol in the following courses to become better informed about careers and postsecondary options related to the horticulture and landscaping sector:

- Integrated Technologies: A Grade 9 course recommended for all SHSM pathways that have a technological education focus. It provides students with opportunities to explore a variety of technologies by engaging in activities related to them.
- Career Studies (compulsory) and Discovering the Workplace: Some of the expectations in these Grade 10 courses provide opportunities for students to explore occupations and other postsecondary options in the sector and to participate in experiential learning activities.

Grades 11 and 12: Specialization

Students acquire the sector-specific knowledge and skills required to earn their OSSD with an SHSM–Horticulture and Landscaping by completing its five required components. Students and their parents/guardians are encouraged to consult with guidance counsellors and teachers to select the courses that will enable them to pursue their goals.

Horticulture and landscaping sector contacts have identified knowledge of entrepreneurship and basic business practices as important for students as they prepare for careers in this sector. It is, therefore, recommended that in Grade 11 or 12 students do one of the following:

- complete an entrepreneurship course offered in the Ontario Business Studies curriculum
- pursue an extracurricular activity focused on entrepreneurship (e.g., participation in Junior Achievement's Company Program)

Students pursuing an apprenticeship pathway should consider the Ontario Youth Apprenticeship Program (OYAP), which enables them to start an apprenticeship while earning their OSSD.

Pathways Template for the SHSM–Horticulture and Landscaping

- Shaded boxes – required credits in the bundle for the SHSM–Horticulture and Landscaping
- (C) – compulsory credits for the OSSD
- (R) – courses that are recommended in light of the student's pathway and career interests

Grade 9 *Exploration*	**Grade 10** *Exploration*	**Apprenticeship Training Pathway** *Specialization*		**College Pathway** *Specialization*		**University Pathway** *Specialization*		**Workplace Pathway** *Specialization*	
		Grade 11	**Grade 12**	**Grade 11**	**Grade 12**	**Grade 11**	**Grade 12**	**Grade 11**	**Grade 12**
An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit
(C) English	(C) English	(C) English	(C) English	(C) English	(C) English	(C) English	(C) English	(C) English	(C) English
(C) Mathematics	(C) Mathematics	(C) Mathematics	Mathematics	(C) Mathematics	Mathematics	(C) Mathematics	Mathematics	(C) Mathematics	(R) Mathematics
(C) Science	(C) Science	Science	(R) Science	Science	(R) Science	Science	(R) Science	Science	(R) Science
(C) Geography of Canada	(C) Canadian History	**Horticulture and Landscaping Major**	**Horticulture and Landscaping Major**	**Horticulture and Landscaping Major**	**Horticulture and Landscaping Major**	**Horticulture and Landscaping Major**	**Horticulture and Landscaping Major**	**Horticulture and Landscaping Major**	**Horticulture and Landscaping Major**
(C) Core French	(C) Career Studies/ Civics	**Horticulture and Landscaping Major**	**Horticulture and Landscaping Major**	**Horticulture and Landscaping Major**	**Horticulture and Landscaping Major**	**Horticulture and Landscaping Major**	**Horticulture and Landscaping Major**	**Horticulture and Landscaping Major**	**Horticulture and Landscaping Major**
(C) Healthy Active Living Education	(C) The Arts	May be used as a (C) Cooperative Education (2 credits) *in either Gr. 11 or Gr. 12*		May be used as a (C) Cooperative Education (2 credits) *in either Gr. 11 or Gr. 12*		May be used as a (C) Cooperative Education (2 credits) *recommended in Gr. 11**		May be used as a (C) Cooperative Education (2 credits) *in either Gr. 11 or Gr. 12*	
(R) Integrated Technologies	(R) Construction Technology	(R) Business Studies *or* an optional or a compulsory credit	(R) Geography *or* Cooperative Education	(R) Business Studies *or* an optional or a compulsory credit	(R) Geography *or* Cooperative Education	(R) Science	(R) Mathematics	(R) Business Studies *or* an optional or a compulsory credit	(R) Geography *or* Cooperative Education

* Students in the university pathway are advised to complete their cooperative education credits in Grade 11, in order to allow room in their timetables in Grade 12 for credits needed to meet university entrance requirements.

Sample Bundles of Credits for the SHSM–Horticulture and Landscaping

- Shaded boxes – required credits in the bundle for the SHSM–Horticulture and Landscaping • (C) – compulsory credits for the OSSD • (R) – courses that are recommended in light of the student's pathway and career interests
- The letters C, E, M, O, and U at the end of course codes indicate the following types of courses: C – college preparation; E – workplace preparation; M – university/college preparation; O – open; U – university preparation
- A list of **all** courses that are approved for inclusion in the bundle of credits for an SHSM–Horticulture and Landscaping is available on the Ministry of Education website, at www.edu.gov.on.ca

Apprenticeship Training Pathway		College Pathway		University Pathway		Workplace Pathway	
Grade 11	**Grade 12**	**Grade 11**	**Grade 12**	**Grade 11**	**Grade 12**	**Grade 11**	**Grade 12**
An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit
(C) ENG3C English	(C) ENG4C English	(C) ENG3C English	(C) ENG4C English	(C) ENG3U English	(C) ENG4U English	(C) ENG3E English	(C) ENG4E English
(C) MCF3M Functions and Applications	MCT4C Mathematics for College Technology	(C) MCF3M Functions and Applications	MCT4C Mathematics for College Technology	(C) MCR3U Functions	MHF4U Advanced Functions	(C) MEL3E Mathematics for Work and Everyday Life	(R) MEL4E Mathematics for Work and Everyday Life
SBI3C Biology	(R) SCH4C Chemistry *or* SPH4C Physics	SBI3C Biology	(R) SCH4C Chemistry *or* SPH4C Physics	SBI3U Biology	(R) SPH4U Physics	SNC3E Science	(R) SNC4E Science
Horticulture and Landscaping Major THL3S (LDC)*	**Horticulture and Landscaping Major** THL4S (LDC)*	**Horticulture and Landscaping Major** THL3S (LDC)*	**Horticulture and Landscaping Major** THL4S (LDC)*	**Horticulture and Landscaping Major** THL3S (LDC)*	**Horticulture and Landscaping Major** SBI4U Biology	**Horticulture and Landscaping Major** THL3S (LDC)*	**Horticulture and Landscaping Major** THL4S (LDC)*
Horticulture and Landscaping Major THL3S (LDC)* *or* TCJ3E Construction Technology	**Horticulture and Landscaping Major** THL4S (LDC)* *or* TCJ4E Construction Technology	**Horticulture and Landscaping Major** THL3S (LDC)* *or* TCJ3C Construction Technology	**Horticulture and Landscaping Major** TCJ4C Construction Technology	**Horticulture and Landscaping Major** TDJ3M Technological Design	**Horticulture and Landscaping Major** TDJ4M Technological Design *or* SCH4U Chemistry	**Horticulture and Landscaping Major** THL3S (LDC)* *or* TCJ3E Construction Technology	**Horticulture and Landscaping Major** THL4S (LDC)* *or* TCJ4E Construction Technology
May be used as a (C) Cooperative Education (2 credits) *in either Gr. 11 or Gr. 12*		May be used as a (C) Cooperative Education (2 credits) *in either Gr. 11 or Gr. 12*		May be used as a (C) Cooperative Education (2 credits) *recommended in Gr. 11***		May be used as a (C) Cooperative Education (2 credits) *in either Gr. 11 or Gr. 12*	
(R) BDI3C Entrepreneurship: The Venture	(R) CGR4E The Environment and Resource Management	(R) BDI3C Entrepreneurship: The Venture	(R) CGR4M The Environment and Resource Management	(R) SCH3U Chemistry *or* SPH3U Physics	(R) MDM4U Mathematics of Data Management	(R) BMX3E Marketing: Retail and Service	(R) CGR4E The Environment and Resource Management

* For an outline of this course, see Appendix D.

** Students in the university pathway are advised to complete their cooperative education credits in Grade 11, in order to allow room in their timetables in Grade 12 for credits needed to meet university entrance requirements.

E. Occupations in the Horticulture and Landscaping Sector

The National Occupational Classification (NOC) is a system that describes and classifies all occupations in Canada using four-digit codes called National Occupation Codes (NOCs). This system and the codes are the authoritative source for occupational information in Canada. Entering one of these four-digit codes in the "Quick Search" box on the NOC website (http://www23.hrdc-drhc.gc.ca/2001/e/generic/welcome.shtml) provides occupational information related to that career.

For more information on occupations, go to the Ontario Skills Passport website (http://skills.edu.gov.on.ca), click on "Occupations and Tasks" in the navigation bar, select "Sorted by NOC", and click on the "Sample Workplace Tasks" checkmark for one of the occupations to view a description of the occupation, an overview of the Essential skills required in the occupation, a list of sample tasks for the occupation, and assessment tools and other career and employment information related to the occupation.

The following are examples of occupations in the horticulture and landscaping sector, along with their NOC codes, sorted according to the type of postsecondary education or training each occupation would normally require.

Note: Some of the names of occupations given below may differ slightly from the names in the NOC. The names listed here reflect common usage by institutions and organizations in this sector in Ontario.

Apprenticeship Training	College
• Arborist 2225	• Golf Course Technician 8612
• Horticultural Technician 2225	• Landscape Technologist 2225
• Small Engine Technician 7335	• Parks Operations Manager 0114
	• Tree Service Technician 2225
	• Urban Forestry and Park Technician 2122

University	Workplace
• Biologist 2121 • Botanist 2121 • Horticulturalist 2225 • Landscape Architect 2151 • Plant Pathologist 2121	• Gardener 2225 • Greenhouse Worker 8432 • Grower 8254 • Landscape Labourer 8612 • Landscaping and Grounds Maintenance Contractors 8255 • Lawn and Garden Retail Salesperson 6421 • Plant Propagator 8432

F. Postsecondary Programs and Training Related to Careers in the Horticulture and Landscaping Sector

The following are examples of programs and training related to careers in the horticulture and landscaping sector and the accreditations or types of accreditation each results in:

Apprenticeship Training

Arborist	Certificate of Apprenticeship/ Certificate of Qualification
Horticultural Technician	Certificate of Apprenticeship/ Certificate of Qualification
Small Engine Technician	Certificate of Apprenticeship/ Certificate of Qualification

College

Floriculture/Retail	Diploma
Golf Course Management	Diploma
Horticulture Technician	Diploma
Landscape Design	Diploma
Landscape Technician	Diploma
Landscape Technology	Diploma
Ornamental Horticulture	Diploma
Parks Operations and Services	Diploma
Urban Tree Maintenance	Diploma

University

Botany	Bachelor's degree
Horticulture and Landscaping	Bachelor's degree
Horticulture Science	Bachelor's degree
Landscape Architecture	Bachelor's degree
Plant Agriculture	Bachelor's degree

Plant Biology	Bachelor's degree
Plant Sciences	Bachelor's degree

Training for the Workplace

Greenskeeper	Certificate
Irrigation Technician	Certificate
Nursery Production	Certificate
Pesticide Technician	Certificate

G. Resources

Associations and Other Professional Groups

Alliance of Sector Councils	www.councils.org
Arboriculture Canada Training and Education Ltd.	www.arborcanada.com
Canadian Horticultural Council	www.hortcouncil.ca
Canadian Nursery Landscape Association (CNLA)	www.canadanursery.com
Conference Board of Canada	www.conferenceboard.ca
International Technology Education Association (ITEA)	www.iteaconnect.org
Landscape Ontario – Horticultural Trades Association	http://hort-trades.com
Ontario Association of Landscape Architects	www.oala.on.ca
Ontario Council for Technology Education (OCTE)	www.octe.on.ca
Ontario Horticultural Association	www.gardenontario.org
Ontario School Counsellors' Association	www.osca.ca
Skills Canada	www.skillscanada.com/
Skills Canada–Ontario	www.skillsontario.com/

Careers

Apprentice Search	www.apprenticesearch.com
Canada Job Futures	www.jobfutures.ca/
Career Cruising	www.careercruising.com
Employment Ontario	www.edu.gov.on.ca/eng/tec/etlanding.html
Job Bank	www.jobbank.gc.ca/
Labour Market information	www.labourmarketinformation.ca
Landscape Trades	www.losourcebook.com/

Ontario Horticulture Education Council	www.hortcareers.com
Ontario Prospects	www.ontarioprospects.info
Ontario Skills Passport (OSP)	http://skills.edu.gov.on.ca
Ontario WorkInfoNet	www.onwin.ca/english
Statistics Canada	www.statcan.ca
Youth Opportunities Ontario	www.youthjobs.gov.on.ca

Education/Government

Applications of Working and Learning National Project	www.awal.ca/about.asp
Federal Resources for Educational Excellence	www.free.edu.gov
Independent Learning Centre	www.ilc.org
Industry Canada	www.ic.gc.ca/epic/site/ic1.nsf/en/home
Ministry of Education	www.edu.gov.on.ca
Ministry of Labour	www.labour.gov.on.ca
Ministry of Research and Innovation	www.mri.gov.on.ca
Ministry of Training, Colleges and Universities	www.edu.gov.on.ca/eng/training/apprenticeship
Ontario College Application Service	www.ontariocolleges.ca
Ontario Universities' Application Centre	www.ouca.ca
Passport to Prosperity	www.edu.gov.on.ca/passport
Towes: How Do Your Skills Measure Up? Skill Plan	http://measureup.towes.com
Ultimate CAD Directory	www.tenlinks.com/CAD/PRODUCTS/landscape.htm
Web Garden	www.webgarden.osu.edu

Safety, Training, and Certifications

Canada Safety Council (CSC)	www.safety-council.org/
Canadian Centre for Occupational Health and Safety (CCOHS)	www.ccohs.ca/
Canadian Red Cross Society	www.redcross.ca
Construction Safety Association of Ontario	www.csao.org/
Farm Safety Association	www.farmsafety.ca/publications/landtips.pdf
Industrial Accident Prevention Association (IAPA)	www.iapa.ca/home/home.asp

Landscape Ontario – Safety Groups Program	www.horttrades.com/displaynews.php?n=268
Life Saving Society	www.lifesaving.ca/
Live Safe! Work Smart!	www.livesafeworksmart.net/
Ontario Forestry Safe Workplace Association	www.ofswa.on.ca
Ontario Pesticide Education Program	www.ridgetownc.uoguelph.ca/OPEP
Passport to Safety	www.passporttosafety.com
Prevention Dynamics	www.preventiondynamics.com
St. John Ambulance	www.sja.ca
Virtual WHMIS	www.virtualwhmis.com
Workplace Safety and Insurance Board (WSIB)	www.wsib.on.ca

H. Appendices

Appendix A: Contextualized Learning Activities (CLAs) for the Specialist High Skills Majors

For the "other required credits" in the bundle of credits, students in a Specialist High Skills Major program must complete learning activities that are contextualized to the knowledge and skills relevant to the economic sector of the SHSM. Contextualized learning activities (CLAs) address curriculum expectations in these courses.

CLAs must take a minimum of 6 hours to complete. Boards may choose to develop one activity that takes 6 hours to complete or two or more activities that together take a minimum of 6 hours to complete.

This template must be used to describe the CLAs. The completed form must be submitted to the Ministry of Education for approval.

Contextualized Learning Activity (CLA) Template

Submit all material in Microsoft Word.

Contact Information

Board: _____

Development date: _____

Contact person: _____

Position: _____

Phone: ( )_____-_____ Fax: ( )_____-_____ E-mail: _____

Specialist High Skills Major	
Course code and course title	
Name of contextualized learning activity/activities	

(continued)

Appendix A *(continued)*

Brief description of contextualized learning activity/activities	
Duration	*(A minimum of 6 hours to complete the CLA(s) is required.)*
Overall expectations	*(Identify the overall expectation(s) to be assessed and/or evaluated through the CLA(s). Include strand title(s).)*
Specific expectations	*(Identify the specific expectations related to the above overall expectation(s) that are addressed in the instructional and assessment strategies of the CLA(s). Include strand title(s) and suborganizer(s).)*
Essential Skills and work habits from the OSP	*(List the Essential Skills and work habits from the OSP that are addressed in the CLA(s).)*
Catholic graduate expectations (if applicable)	

Instructional/Assessment Strategies

Teacher's Notes *(Provide suggestions that will assist the teacher in delivering the CLA(s). For example, remind teachers to make sure that handouts, such as authentic workplace materials/documents used by the sector, are available for the activity.)*

Context *(Describe the workplace context for the activity/activities.)*

Strategies *(In point form, describe the sequence of instructional and assessment strategies that will support the intended learning. Attach all student handouts and worksheets.)*

Assessment and Evaluation of Student Achievement – Summary

(List all assessment and evaluation strategies and tasks, based on the strategies identified in the preceding section. Attach checklists, rubrics, correction keys, etc.)

Strategies/Tasks *(add rows as required)*	**Purpose** Assessment *for* learning (diagnostic, formative) *OR* Assessment *of* learning (summative; for evaluation)
1.	
2.	
3.	
4.	
5.	
6.	

Additional Notes/Comments/Explanations

(Provide additional suggestions for teachers that will help them deliver the CLA(s).)

Resources

(List all the resources needed to support the implementation of the CLA(s).)

Authentic Workplace Materials *(e.g., blueprints, workplace manuals, specification sheets, spreadsheets)*

Human Resources

Print

Video/DVD

Software

Websites

Other

Accommodations

(List instructional, environmental, and assessment accommodations.)

List of Attachments

(Attach all related materials, e.g., student worksheets, tests, rubrics.)

Appendix B: Forms of Experiential Learning and Related Programs

Length	Credit Value	Description	Key Elements
Job shadowing			
1/2 to 1 day (in some cases, up to 3 days)	none	one-on-one observation of a worker at a place of employment	• involves the pairing of a student with a worker in a specific occupation • may be integrated with a credit course • may be part of a student's school–work transition program
Job twinning			
1/2 to 1 day	none	one-on-one observation of a cooperative education student at his or her placement	• involves the pairing of a student with a cooperative education student • may be integrated with a credit course • may be part of a student's school–work transition program
Work experience			
1–4 weeks	none	a planned learning opportunity, within any credit course, that provides students with relatively short-term work experiences, usually of one or two weeks' duration and not exceeding four weeks	• involves a short-term, subject-related work placement • forms an integral part of a specific credit course • requires pre-placement orientation • requires a personalized placement learning plan
Virtual work experience			
the equivalent of 1–4 weeks	none	a simulated work experience, within any credit course, that allows students, including students who receive a special education program or services and students in rural areas, to take advantage of a greater variety of experiences than those available in the local economy	• involves a short-term, subject-related virtual work placement facilitated through the use of computer software and the Internet • forms an integral part of a specific credit course • requires pre-placement orientation • requires a personalized placement learning plan
Cooperative education			
full term (year or semester)	1 credit per 110-hour cooperative education credit course successfully completed	a planned learning experience, for which credits are earned, that integrates classroom theory and learning experiences at a workplace to enable students to apply and refine the knowledge and skills acquired in a related curriculum course or a locally developed course	• requires a personalized placement learning plan • involves the earning of credits • requires 15 hours of pre-placement instruction • is monitored by the cooperative education teacher • has a classroom and a workplace component • involves reflective learning • requires 7 hours of integration per co-op credit

(continued)

Appendix B *(continued)*

Length	Credit Value	Description	Key Elements
School–work transition programs			
varies, but typically not less than 2 years (3–4 semesters over Grades 11 and 12)	varies with type of planned workplace experience	a combination of school- and work-based education and training involving a variety of learning opportunities	• is oriented towards students who will be entering the workforce directly after high school • involves the development of partnerships with employers • involves the enhancement of curriculum with input from employers • involves the earning of cooperative education credits
Ontario Youth Apprenticeship Program (OYAP)			
varies, but typically not less than 2 years (3–4 semesters over Grades 11 and 12)	varies with opportunities	an opportunity for a student to meet diploma requirements while participating in an apprenticeship occupation	• is designed for students 16 years of age and older who have already earned 16 credits towards the OSSD • may involve the student's registration in an apprenticeship • requires documentation by the student and trainer regarding trade-specific competencies acquired • involves the earning of cooperative education credits

(From Ontario Ministry of Education, *Cooperative Education and Other Forms of Experiential Learning: Policies and Procedures for Ontario Secondary Schools, 2000*, pp. 7–8)

Appendix C: Minimum Age to Work in and Visit Ontario Workplaces[1]

Specialist High Skills Major[2]	Type of Workplace	Minimum Age to Work	Minimum Age to Visit / Conditions for Visiting[3]
• Arts and Culture • Business • Health and Wellness • Hospitality and Tourism	Industrial establishments,[4] such as offices, stores, arenas, restaurant serving areas	14	The regulation governing industrial establishments (Reg. 851, R.R.O. 1990) made under the OHSA sets out minimum age restrictions for workers, covering workplaces such as offices, stores, arenas, restaurants, and factories. However, the regulation states that people younger than the specified minimum age to work may *visit* (but not *work in*) these establishments if: • they are accompanied by a person who has attained the age of majority (i.e., 18 years of age); • they are being guided on a tour of the industrial establishment (e.g., office, store, arena, or factory); • they are in an area of the industrial establishment used for sales purposes; or • they are in an area of the establishment to which the public generally has access.
• Business • Hospitality and Tourism • Manufacturing • Transportation	Most factories,[5] including restaurants and any commercial kitchens, automotive service garages, produce and meat preparation or shipping and receiving areas in grocery stores, laundries, and warehouses	15	
• Forestry	Logging operations[6]	16	
• Construction	Construction project[7]	16 Under the regulation governing construction projects (O. Reg. 213/91) made under the OHSA, 16 is the minimum age to work on or to visit *any* construction project. A person under the age of 16 may *visit* a construction site *only when work is not being performed there*. (Note that the definitions of *construction* and *construction project* include a wide variety of types of work and workplaces. It is important to review the definitions carefully. See note 7, below.)	

All notes appear on pages 32–34.

(continued)

Appendix C ***(continued)***

Specialist High Skills Major[2]	Type of Workplace	Minimum Age to Work	Minimum Age to Visit / Conditions for Visiting[3]
• Mining	Surface mines,[8] mining plants[9]	16	The regulation governing mines and mining plants (Reg. 854, R.R.O. 1990) made under the OHSA allows for tours or visits to mines and mining plants by persons who are younger than the specified minimum age to work if they are accompanied by and under the direction of a guide.
	Underground mine	18	
	Working face of a surface mine	18	
• Agriculture • Arts and Culture • Environment • Health and Wellness • Horticulture and Landscaping	Certain workplaces (or parts thereof) may be covered, with respect to age restrictions, by regulations governing other sectors. For example, see the industrial establishments regulation (Reg. 851, R.R.O. 1990).		
• Construction • Manufacturing	Window cleaning	18	*Not applicable.* (The regulation governing window cleaning is Reg. 859, R.R.O. 1990.)

Notes to Appendix C

1. As specified in regulations made under the Occupational Health and Safety Act (OHSA). Other statutes and regulations made under those statutes also set minimum ages for various occupations.

   In addition, some workplaces have established their own, *more stringent* minimum ages for employment. For instance, some retail establishments and restaurant chains will not hire anyone under the age of 16, even though the legislated minimum age limit is lower. Similarly, some industrial establishments, and other workplaces that require the use of heavy equipment or machinery, will not hire anyone under the age of 18, even though the legislated minimum age limit might be lower. Such in-house minimum age requirements may be acceptable, as long as the limits do not conflict with the Ontario Human Rights Code or other applicable law.

2. Column 1 identifies the Specialist High Skills Majors with which the workplace categories in column 2 may be associated. Note, however, that some specialist programs may involve workplaces identified in more than one category (e.g., a business program may involve offices, factories, and construction sites). When using this chart to verify compliance

with minimum age to work and visit requirements, always refer to the particular type of workplaces involved in the program (column 2), not to the sector to which the program relates (column 1).

3. Under certain conditions, as identified in this table, persons younger than the minimum age to work may visit, *but not work in*, certain workplaces.

4. According to the OHSA, ***industrial establishment*** means an office building, factory, arena, shop or office, and any land, buildings and structures appertaining thereto.

5. According to the OHSA, ***factory*** means

   a) a building or place other than a mine, mining plant or place where homework is carried on, where,

      i) any manufacturing process or assembling in connection with the manufacturing of any goods or products is carried on,

      ii) in preparing, inspecting, manufacturing, finishing, repairing, warehousing, cleaning or adapting for hire or sale any substance, article or thing, energy is,

         (A) used to work with any machinery or device, or

         (B) modified in any manner,

      iii) any work is performed by way of trade or for the purposes of gain in or incidental to the making of any goods, substance, article or thing or part thereof,

      iv) any work is performed by way of trade or for the purposes of gain in or incidental to the altering, demolishing, repairing, maintaining, ornamenting, finishing, storing, cleaning, washing or adapting for sale of any goods, substance, article or thing, or

      v) aircraft, locomotives, or vehicles used for private or public transport are maintained,

   b) a laundry including a laundry operated in conjunction with,

      i) a public or private hospital,

      ii) a hotel, or

      iii) a public or private institution for religious, charitable or educational purposes, and

   c) a logging operation.

6. According to the OHSA, ***logging*** means the operation of felling or trimming trees for commercial or industrial purposes or for the clearing of land, and includes the measuring, storing, transporting or floating of logs, the maintenance of haul roads, scarification, the carrying out of planned burns and the practice of silviculture.

7. According to the OHSA, ***construction*** includes erection, alteration, repair, dismantling, demolition, structural maintenance, painting, land clearing, earth moving, grading, excavating, trenching, digging, boring, drilling, blasting or concreting, the installation of any machinery or plant, and any work or undertaking in connection with a project but does not include any work or undertaking underground in a mine.

Project means a construction project, whether public or private, including,

a) the construction of a building, bridge, structure, industrial establishment, mining plant, shaft, tunnel, caisson, trench, excavation, highway, railway, street, runway, parking lot, cofferdam, conduit, sewer, water main, service connection, telegraph, telephone or electrical cable, pipe line, duct or well, or any combination thereof,

b) the moving of a building or structure, and

c) any work or undertaking, or any lands or appurtenances used in connection with construction.

8. According to the OHSA, ***mine*** means any work or undertaking for the purpose of opening up, proving, removing or extracting any metallic or non-metallic mineral or mineral-bearing substance, rock, earth, clay, sand or gravel.

9. According to the OHSA, ***mining plant*** means any roasting or smelting furnace, concentrator, mill or place used for or in connection with washing, crushing, grinding, sifting, reducing, leaching, roasting, smelting, refining, treating or research on any substance mentioned in the definition of "mine" (see note 8, above).

Appendix D: Locally Developed Courses

1. Course Outline for SHSM–Horticulture and Landscaping, Open – THL3S

Prerequisite: None
Credit value: May be delivered as a 1-credit or a 2-credit course
Discipline/Subject: Technological Education
Board: Halton District School Board

Course Description

This course focuses on landscape design, construction, and maintenance relating to residential, commercial, industrial, and recreational business. Students will be introduced to the skills and processes involved in related landscape industries, and development of employment skills in preparation for specialization within this industry to suit all four postsecondary pathways. Students will gain practical experience with the use of various types of materials, processes, and techniques used in the landscape industry. They will also study industry standards and codes, consider health and safety issues, and explore careers. The importance of lifelong learning is reinforced in relation to the way this industry influences our society and the environment.

Key Curriculum Learning Expectations

Theory and Foundation

The student will:

- explain the relationships between plant biology and physiological processes and techniques related to propagation and maintenance of plants;
- identify and describe the use of landscape plants;
- describe procedures and necessary record keeping used in hard and soft landscape renovation, maintenance, and construction;
- identify pests and disorders of plants and turf-grass and describe safe procedures for the handling, application, and disposal of pesticides;
- apply the design process to develop solutions, products, processes, and services in response to complex challenges or problems in landscape technology.

Skills and Processes

The student will:

- demonstrate a working knowledge of plant biology, soil structure and quality, the plant–soil relationship, and fertilizer composition;
- demonstrate the procedures involved in landscape construction and maintenance, including safe use of appropriate tools, materials, and maintenance;
- apply appropriate communication skills necessary for functioning in the landscape industry;
- perform proper measurements and calculations required for various applications in landscape construction and maintenance;

- demonstrate an understanding of plant problems, including application and monitoring of appropriate pesticides;
- apply design process skills to a variety of landscaping projects.

Impact and Consequences

The student will:

- explain the interrelationship between the landscape industry and the construction industry;
- explain the impact of the landscape industry on the economy, on society, and on the environment, both locally and globally;
- evaluate landscape projects in terms of efficiency and needs;
- apply health and safety legislation, general shop and site safety rules, and rules specific to the safe use of materials, tools, and equipment;
- identify careers in landscape technology and the skills, education, and training each requires.

Units/Topics

- Workplace Safety
- Workplace Communication
- Trade Calculations
- Landscape Equipment and Maintenance
- Plant Science (Botany, Processes and Propagation)
- Plant Identification
- Soils and Fertilizers
- Entomology and Pathology
- Landscape Design
- Landscape Construction
- Landscape Maintenance
- Turf Management
- Greenhouse and Nursery Production
- Arboriculture
- Related Industries / Career Exploration (Agriculture, Floriculture, Interior Plantscaping, Garden Centre Operation)

Assessment Evaluation

Throughout the course (70%):

70% of the student's mark comes from work completed during the term, including assignments, quizzes, unit tests and practical work.

Knowledge and Understanding (facts and comprehension)	20%
Thinking and Inquiry (problem solving and research)	20%
Communication (listening, reading, writing, speaking)	10%
Application (use of knowledge, tools, and materials)	50%

Towards the end of the course (30% final evaluation):

30% of the course mark comes from the final evaluation(s).

The mark breakdown is as follows:

10% Written Exam

20% Performance Tasks

Learning Skills:

The report card provides a record of the learning skills demonstrated by the student in every course, in the following five categories: Works Independently, Teamwork, Organization, Work Habits, and Initiative. The learning skills are evaluated using a four-point scale (E–Excellent, G–Good, S–Satisfactory, N–Needs Improvement).

While the learning skills are not directly considered in the determination of percentage grades, the practical basis of technological education courses frequently requires the use of specialized tools and equipment not available to the student outside of the school. Poor learning skills, especially work habits, may result in a student not meeting the curriculum expectations and therefore can affect the student's final mark.

Teaching and Learning Strategies

A variety of teaching and learning strategies may be used in this course, including direct instruction, group work, self-directed projects, and independent study.

The safety of students, staff, and public is of primary importance. A separate safety sheet, which must be signed by the parent or guardian, is provided. Please note that students who wilfully or consistently violate safety rules and procedures may be removed from the course altogether, or may be removed from the lab and shop portions of the course and required to complete the course in an alternative setting and delivery mode.

2. Course Outline for SHSM–Horticulture and Landscaping, Open – THL45

Prerequisite: THL35
Credit value: May be delivered as a 1-credit or a 2-credit course
Discipline/Subject: Technological Education
Board: Halton District School Board

Course Description

This course builds on skills and knowledge developed in the locally developed Grade 11 SHSM–Horticulture and Landscaping THL35 course. The focus is on more complex aspects of landscaping related to residential, commercial, recreational and industrial business-construction, installation, and maintenance; advanced practical workplace applications in both the landscape and nursery industries, and the development of specialized employment skills and independent learning skills. Students will focus their specialization on one specific career destination and develop advanced skills in that area of interest. Within this specialization, they will examine the materials, processes, labour, tools, and equipment used in the landscape industry. They will also study industry standards and building codes; consider health and safety issues, and explore careers, lifelong learning opportunities, and the impact of landscaping and its related industries on society and the environment.

Key Curriculum Learning Expectations

Theory and Foundation

The student will:

- explain the complex relationships between plant biology and physiological processes and advanced techniques related to propagation and maintenance of plants;
- identify and describe the use of landscape plants;
- describe advanced procedures and record keeping used in hard and soft landscape renovation, maintenance, and construction;
- identify pests and disorders of plants and describe safe procedures for the use of pesticides, methods of biological control, and Integrated Pest Management appropriate to the problem;
- apply the design process to develop solutions, products, processes, and services in response to the variety of applications in landscape technology.

Skills and Processes

The student will:

- demonstrate an advanced knowledge of plant biology, soil structure and quality, the plant-soil relationship and fertilizer composition;
- demonstrate a knowledge of plant cultural requirements as they relate to use in a variety of landscape applications;
- demonstrate complex procedures involved in landscape construction and maintenance, such as retaining wall construction, large calliper tree planting, sprinkler installation;
- demonstrate safe use of appropriate tools and landscape materials, and perform appropriate landscape equipment maintenance;
- use appropriate communication skills necessary for leadership roles in the landscape industry;

- perform complex measurements and calculations required for advanced applications in landscape construction and maintenance;
- demonstrate an advanced understanding of plant problems, including alternatives to pesticide use;
- monitor biological control and develop Integrated Pest Management systems;
- apply design process skills to a variety of advanced landscaping projects.

Impact and Consequences

The student will:

- explain the interrelationship between the landscape industry and the construction industry;
- explain the impact of the landscape industry on the economy, on society, and on the environment, both locally and globally;
- evaluate landscape projects in terms of materials, equipment, and labour;
- apply health and safety legislation, general shop and site safety rules;
- apply safety regulations specific to the use of materials, tools, and equipment;
- identify the wide variety of careers in landscape technology and the skills, education, and training each requires.

Units/Topics

- Workplace Safety
- Workplace Communication
- Trade Calculations
- Landscape Equipment and Maintenance
- Plant Science (Botany, Processes and Propagation)
- Plant Identification
- Soils and Fertilizers
- Entomology and Pathology
- Landscape Design
- Landscape Construction
- Landscape Maintenance
- Turf Management
- Greenhouse and Nursery Production
- Arboriculture
- Related Industries/Career Exploration (Agriculture, Floriculture, Interior Plantscaping, Garden Centre Operation)

Assessment Evaluation

Throughout the course (70%)

70% of the student's mark comes from work completed during the term, including assignments, quizzes, unit tests and practical work.

Knowledge and Understanding (facts and comprehension)	20%
Thinking and Inquiry (problem solving and research)	20%
Communication (listening, reading, writing, speaking)	10%
Application (use of knowledge, tools, and materials)	50%

Towards the end of the course (30% final evaluation)

30% of the course mark comes from the final evaluation(s).

The mark breakdown is as follows:

10% Written Exam

20% Performance Tasks

Learning Skills

The report card provides a record of the learning skills demonstrated by the student in every course, in the following five categories: Works Independently, Teamwork, Organization, Work Habits, and Initiative. The learning skills are evaluated using a four-point scale (E–Excellent, G–Good, S–Satisfactory, N–Needs Improvement).

While the learning skills are not directly considered in the determination of percentage grades, the practical basis of technological education courses frequently requires the use of specialized tools and equipment not available to the student outside of the school. Poor learning skills, especially work habits, may result in a student not meeting the curriculum expectations and therefore can affect the student's final mark.

Teaching and Learning Strategies

A variety of teaching and learning strategies may be used in this course, including direct instruction, group work, self-directed projects, and independent study.

The safety of students, staff, and public is of primary importance. A separate safety sheet, which must be signed by the parent or guardian, is provided. Please note that students who wilfully or consistently violate safety rules and procedures may be removed from the course altogether, or may be removed from the lab and shop portions of the course and required to complete the course in an alternative setting and delivery mode.

Program Profiles

Program Profile: Durham District School Board

Name of Initiative	**Horticulture Technology by the Lake**
Brief description	This program is offered at a unique location on the shores of Lake Ontario that provides access to a variety of settings for creative landscape projects. In addition to developing exterior landscaping skills, students gain experience in the design process and greenhouse operations. College instructors deliver part of the Grade 12 program, which also includes experiential learning with employers in the sector and the earning of certifications.
Number of students	20
Board	**Durham District School Board** 400 Taunton Rd East Whitby ON L1R 2K6
Board contact	Name: John Beatty Title: Education Officer, Programs 7– 2, Student Success Leader Phone: 905-666-6971 Fax: 905-666-6370 E-mail: beatty_john@durham.edu.on.ca
School	**G.L. Roberts Collegiate and Vocational Institute** 399 Chaleur Ave Oshawa ON L1J 1G5
School contact	Name: Ian Skinner Title: Principal Phone: 905-728-7594 Fax: 905-728-7760 E-mail: skinner_ian@durham.edu.on.ca
Partners:	
Business/Community	• Durham Region Horticulture Local Industry Committee • Landscape Ontario
College	Humber College

Program Profile: Halton Catholic District School Board

Name of Initiative	**SHSM–Horticulture and Landscaping**
Brief description	This program focuses on fundamental and industry-standard skills. It includes the study of plant identification and propagation, turf management, plant science, nursery production, irrigation, landscaping design, construction, and maintenance. Through community and sector partnerships and innovative projects, students gain practical experience with materials, processes, and techniques used in the landscaping and horticulture industry.
Number of students	30
Board 1	**Halton Catholic District School Board** 802 Drury Lane Burlington ON L7R 2Y2
Board contact	Name: Rob DeRubeis Title: Curriculum Consultant – Technological Studies Phone: 905-632-6314 ext. 568 Fax: 905-632-5417 E-mail: derubeisr@hcdsb.org
Board 2	**Halton District School Board** 2050 Guelph Line Burlington ON L7R 3Z2
Board contact	Name: Dave Lewis Title: Pathways, Co-op, and Guidance Coordinator Phone: 905-335-3663 ext. 2225 Fax: 905-332-1891 E-mail: lewisd@hdsb.ca
Schools	**White Oaks Secondary School** 1055 McCraney St East Oakville ON L6H 1H9 **Notre Dame Catholic Secondary School** 2333 Headon Forest Dr Burlington ON L7M 3X6
Additional contact	Name: Dave Graves Title: HDSB Coordinator – Technological Education Phone: 905-335-3663 ext. 2229 Fax: 905-332-1891 E-mail: gravesd@hdsb.ca

Partners:	
Business/Community	Landscape Ontario
College	Humber College

Program Profile: Kawartha Pine Ridge District School Board

Name of Initiative	**SHSM–Horticulture and Landscaping**
Brief description	Kawartha Pine Ridge offers two distinct horticulture and landscaping programs. The students at Cobourg District Collegiate Institute East study plant science, greenhouse structures, propagation, production, and indoor and outdoor landscaping, and are involved in growing and marketing greenhouse crops. Emphasis in the classroom is on plant science, trends in the horticultural industry, and career opportunities. The program at Thomas A. Stewart Secondary School focuses on landscape design, construction, and maintenance as they relate to residential, commercial, industrial, and recreational businesses. Students learn about and practise skills related to materials, processes, and techniques used in the landscape and horticultural industry.
Number of students	68
Board	**Kawartha Pine Ridge District School Board** 1994 Fisher Dr Peterborough ON K9J 7A1
Board contact	Name: Rob Andrews Title: Superintendent of Education, Student Success Leader Phone: 1-877-577-7048 ext. 2173 Fax: 705-742-7801 E-mail: Robert_andrews@kprdsb.ca
School 1	**Cobourg District Collegiate Institute East** 335 King St East Cobourg ON K9A 1M2
School contacts	Name: Karin Mackenzie Russell Title: Vice-Principal Phone: 905-372-2271 Fax: 905-372-5343 E-mail: karin_mackenzierussell@kprdsb.ca Name: Sara Meaney Title: Student Success Teacher Phone: 905-372-2271 Fax: 905-372-5343 E-mail: sara_meaney@kprdsb.ca

School 2	**Thomas A. Stewart Secondary School** 1009 Armour Rd North Peterborough ON K9J 7B1
School contact	Name: Michelle Chambers Title: Teacher Phone: 705-743-5230 Fax: 705-749-9452 E-mail: michelle_chambers@kprdsb.ca
Partners:	
Business/Community	- Burns Water Garden - Community Gardens - Cressman Landscaping - Landscape Ontario - Little Lake Cemetery - Niagara Parks School of Horticulture - Peterborough Green-up - YWCA
College	Fleming College
Universities	- University of Guelph - University of Guelph – Ridgetown Campus

Program Profile: Niagara Catholic District School Board

Name of Initiative	**Niagara G.R.O.W.S.** **Growing Real Opportunities With Students**
Brief description	This program focuses on greenhouse management, product development, and landscape design, construction, installation, and maintenance. Students take a hands-on approach to designing, scheduling, and implementating horticultural, floricultural, and landscape projects. The program is available to all students in the board, in a region that boasts rich soils and climates that are ideal for horticulture.
Number of students	15–20
Board	**Niagara Catholic District School Board** 427 Rice Rd Welland ON L3C 7C1
Board contact	Name: John Crocco Title: Superintendent of Education Phone: 905-735-0240 ext. 228 Fax: 905-735-9710 E-mail: john.crocco@ncdsb.com
School	**Blessed Trinity Catholic Secondary School** 145 Livingston Ave Grimsby ON L3M 5J6
School contact	Name: David Antolin Title: Teacher Phone: 905-945-6706 Fax: 905-945-2205 E-mail: david.antolin@ncdsb.com
Partners:	
Business/Community	- Apprenticeship Strategies Group - Business Education Council (BEC) - Landscape Ontario - Niagara Parks Commission, School of Horticulture - Niagara Training and Adjustment Board (NTAB)
College	Niagara College

Program Profile: Peel District School Board

Name of Initiative	**Landscape Design and Construction High Skills Major**
Brief description	This program is offered in western Mississauga, a rapidly growing community where new house construction and landscaping are booming businesses. This program focuses on landscape design, construction estimating, and the construction of gardens in the community. Students develop skills in advanced land use planning, design, problem-solving, manual and AutoCAD drafting, technical production, site evaluation, soft and hard landscape construction, planting and horticultural practices, and landscape maintenance.
Number of students	22
Board	**Peel District School Board** 5650 Hurontario St Mississauga ON L5R 1C6
Board contact	Name: Rebecca Crouse Title: Instructional Co-ordinator, Secondary Curriculum and Instruction Support Services Phone: 905-890-1010 ext. 2557 E-mail: rebecca.crouse@peelsb.com
School	**Stephen Lewis Secondary School** 3675 Thomas St Mississauga ON L5M 7E6
School contact	Name: Joanne Durst Title: Head, Technological Education Phone: 905-363-0289 ext. 441 Fax: 905-363-0293 E-mail: joanne.durst@peelsb.com
Partners: **Business/Community**	Landscape Ontario
College	Seneca College of Applied Arts and Technology
University	University of Guelph